

Trend Study 19B-15-02

Study site name: Upper Broad Canyon.

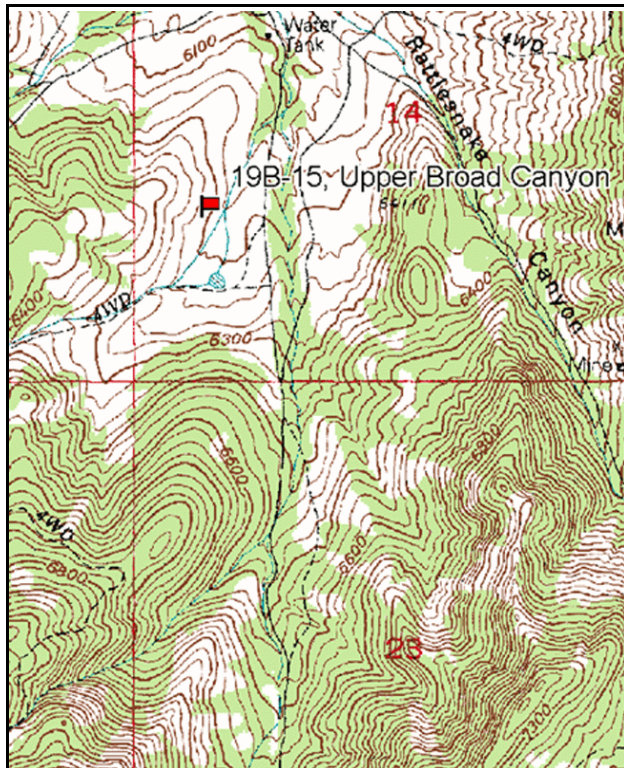
Vegetation type: Big Sagebrush-Grass.

Compass bearing: frequency baseline 331 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft). Rebar: belt 1 and 5 on 1ft, belt 2 on 1ft, and belt 3 on 2ft.

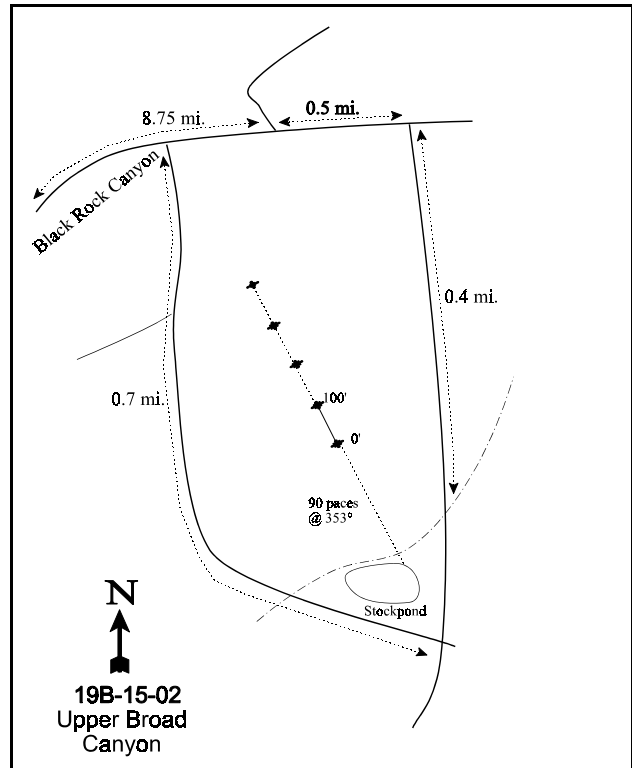
LOCATION DESCRIPTION

From Highway U-36 between Vernon and Tintic Junction, proceed east on the Black Rock Canyon Road for 8.75 miles, to the road junction in Broad Canyon within Utah County. At this point, take the right fork (east) and travel an additional 0.50 miles to another fork. Turn right and travel 0.40 miles to another fork. Turn left and travel approximately 0.10 miles to where there is a stock pond surrounded by a fence on the west side of the road. From the northwest corner of the stock pond, walk 90 paces at 353 degrees magnetic toward a large juniper at the base of the hill. At this point, there will be a green steel fencepost, 15 inches high with a red browse tag, number 3935, attached, which marks the 0-foot end of the frequency baseline.



Map Name: Boulder Peak

Township 9S, Range 3W, Section 14



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4431762 N 401665 E

DISCUSSION

Upper Broad Canyon - Trend Study No. 19B-15

The Upper Broad Canyon trend study is located on a 15%-20% slope with a south to southeast facing aspect. The area constitutes transitional deer range at an elevation of 6,250 feet. The range type is mountain big sagebrush-grass intermixed with smaller amounts of antelope bitterbrush. A wildfire burned through the area in either 2000 or 2001, and although the site itself was not burned, the entire surrounding area was. This transect now samples a small sagebrush island surrounded by a burned rangeland. Pellet groups are frequent and the principal browse species are moderately to heavily hedged. In 1983, the presence of two antler sheds indicated that some winter use occurs. Spring sheep grazing is evident on this BLM spring sheep allotment and there is obvious signs of trailing to a nearby stock pond. The pond usually contains water year round and is located about 200 yards south of the study. While driving to the site in 2002, four bucks and a couple of does were seen just north of the site. A pellet group transect read on site in 2002 estimated 22 deer days use/acre (55 ddu/ha) and 19 sheep days use/acre (48 sdu/ha).

Soil is fine textured, but contains many variable sized granite rocks, both on and below the soil surface. Soil analysis indicates a clay loam texture with a neutral reactivity (pH of 7.1). The effective rooting depth is almost 10 inches and average soil temperature is 64°F at 11 inches in depth. Phosphorous levels were measured at 7.1 ppm which is considered low and could limit plant growth and development. Vegetative cover is fair and litter cover is poor. There are significant amounts of surface rock, erosion pavement, and bare soil that contribute to a noticeable, but not excessive rate of erosion. The erosion condition class was determined as stable to slight in 2002.

The key browse species is mountain big sagebrush which contributed to about 70% of the browse cover in 1997 and 2002. Density was estimated at about 2,100 plants/acre in 1997 and 2002. In 1983 and 1989, this population experienced moderate to heavy hedging, poor vigor, and moderately high decadence. In 1997 and 2002, use declined and vigor was somewhat improved, but decadence remained moderate to high. Decadent sagebrush were most abundant in 1989 and 2002, both drought years. The number of dead sagebrush plants has been stable at about 900 plants/acre in 1997 and 2002, which represents 30% loss of the population. Annual leader growth for sagebrush averaged just under two inches of growth in 2002. Antelope bitterbrush had an estimated density of just under 400 plants/acre in 1997 and 2002. Although bitterbrush has been moderately to heavily utilized in all readings, the population has maintained generally good vigor and low decadence. Individual plants have acquired a prostrate growth form due to elevated levels of use for many years. Annual bitterbrush leaders averaged 2.7 inches of growth in 2002.

Pinyon and juniper are scattered throughout the site in moderate densities. Point-center quarter data taken in 2002 estimated 73 pinyon and 32 juniper trees/acre on the site. The broom snakeweed density has fluctuated between years, and was estimated at 6,760 plants/acre in 1997. Snakeweed density decreased in 2002 to 2,500 plants/acre due to drought conditions. Snakeweed density can fluctuate dramatically with precipitation patterns.

Grasses are the dominant component of the understory. This site has a good stand of bluebunch wheatgrass which has remained stable in frequency since 1983. Sandberg bluegrass is also abundant and has remained stable in nested frequency in 2002. Cheatgrass brome was moderately abundant in 1997, but declined significantly in nested frequency with drought in 2002. Less abundant perennials include crested wheatgrass and bottlebrush squirreltail. Utilization on grasses was minimal on most plants in 2002.

Annuals dominated the forb component in 1997, primarily pale alyssum and bur buttercup. With drought in 2002, annual forbs nearly disappeared from the site. Perennial forbs have been sparse in all readings with pussytoes being the most abundant.

1983 APPARENT TREND ASSESSMENT

Soil trend appears stable. The rate of erosion is noticeable, but not of great magnitude. The gentle slope is helpful in this regard, as is a slowly improving herbaceous understory cover. The browse trend appears stable, although mountain big sagebrush and antelope bitterbrush are receiving heavy utilization. The herbaceous understory appears stable and will not likely improve under the current grazing system.

1989 TREND ASSESSMENT

The soil trend remains relatively stable. However, the soil condition remains poor with some soil loss continuing. Age and form class of the key browse species indicate a slightly downward trend. Percent decadency and the percentage of mountain big sagebrush plants displaying poor vigor has increased since 1983. The herbaceous understory trend is stable with little change in sum of nested frequency values since 1983.

TREND ASSESSMENT

soil - stable (3)

browse - slightly down (2)

herbaceous understory - stable (3)

1997 TREND ASSESSMENT

The soil trend is slightly down with decreases in litter cover and an increase in percent bare soil. Percent bare ground has slowly been increasing since 1983. Some erosion is evident, yet it does not appear to have accelerated over the years. The browse trend is stable overall. Mountain big sagebrush shows improvements in decadence and vigor, although the percentage of young plants is not adequate to replace the dead plants lost from the population. The proportion of decadent plants classified as dying is also high at 70%. Trend will decline in the future without increased reproduction. The antelope bitterbrush population is still heavily utilized, but retains good vigor and low decadence. The herbaceous understory trend is stable. There is little change in perennial herbaceous understory sum of nested frequency over all years. The forb component is dominated by annual species and any upward trend will likely be demonstrated in the forbs first.

TREND ASSESSMENT

soil - slightly down (2)

browse - stable (3)

herbaceous understory - stable (3)

2002 TREND ASSESSMENT

Trend for soils is stable. Ground cover estimates remain stable on the site even with drought in 2002. Trend for browse is stable. The density of mountain big sagebrush remains stable even without an improvement in reproduction. Decadence increased to 47% which is not a positive change. However, vigor improved and use decreased. The proportion of the sagebrush population classified as decadent and dying declined from 70% in 1997 to 37% in 2002. Increased decadence and low reproduction are indicative of drought, and both of these key parameters should improve with better precipitation. Bitterbrush also has a stable density. Although use remains moderate to heavy, vigor is generally good, and decadence is moderately low at 22%. Trend for the herbaceous understory is stable. Perennial grasses are maintaining themselves on the site. Bluebunch wheatgrass and Sandberg bluegrass are the most abundant species and both remained at stable frequencies. Perennial forbs remain insignificant on the site and will likely remain so without some type of intervention to promote their increase.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --
Herd unit 19B, Study no: 15

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'83	'89	'97	'02	'83	'89	'97	'02	'97	'02
G	Agropyron cristatum	_a 12	_b 83	_a 40	16	9	33	16	6	.79	1.12
G	Agropyron spicatum	_{ab} 189	_a 147	_b 202	_b 204	70	60	79	88	14.03	12.96
G	Bromus tectorum (a)	-	-	_b 212	_a 17	-	-	76	10	1.23	.05
G	Oryzopsis hymenoides	_c 30	_b 10	_{ab} 1	_a -	14	6	1	-	.00	-
G	Poa fendleriana	-	-	4	-	-	-	2	-	.01	-
G	Poa secunda	_a 212	_b 259	_b 261	_b 282	84	91	94	95	5.13	4.10
G	Sitanion hystrix	_b 34	_a 17	_a 3	_a 3	16	8	1	1	.03	.00
Total for Annual Grasses		0	0	212	17	0	0	76	10	1.23	0.05
Total for Perennial Grasses		477	516	511	505	193	198	193	190	19.99	18.20
Total for Grasses		477	516	723	522	193	198	269	200	21.23	18.25
F	Agoseris glauca	-	-	2	1	-	-	1	1	.00	.00
F	Alyssum alyssoides (a)	-	-	_b 328	_a 11	-	-	99	5	1.34	.02
F	Antennaria rosea	13	33	19	29	6	15	9	14	.12	.31
F	Arabis spp.	4	3	5	-	2	1	3	-	.01	-
F	Calochortus nuttallii	_b 11	_b 7	_a -	_a -	5	5	-	-	-	-
F	Chaenactis douglasii	12	6	-	-	4	2	-	-	-	-
F	Cirsium spp.	-	-	1	-	-	-	1	-	.00	-
F	Collinsia parviflora (a)	-	-	_b 16	_a -	-	-	7	-	.03	-
F	Delphinium nuttallianum	4	-	-	-	2	-	-	-	-	-
F	Epilobium brachycarpum (a)	-	-	_b 14	_a -	-	-	6	-	.03	-
F	Holosteum umbellatum (a)	-	-	-	1	-	-	-	1	-	.00
F	Lomatium spp.	_a -	_a -	_b 12	_a -	-	-	6	-	.03	-
F	Microsteris gracilis (a)	-	-	_b 59	_a -	-	-	25	-	.12	-
F	Phlox longifolia	-	-	-	1	-	-	-	1	-	.00
F	Ranunculus testiculatus (a)	-	-	_b 135	_a 12	-	-	51	5	.70	.02
F	Tragopogon dubius	6	1	-	-	3	1	-	-	-	-
F	Unknown forb-perennial	4	-	-	-	1	-	-	-	-	-
F	Zigadenus paniculatus	3	13	6	1	2	5	2	1	.01	.03
Total for Annual Forbs		0	0	552	24	0	0	188	11	2.24	0.05
Total for Perennial Forbs		57	63	45	32	25	29	22	17	0.18	0.35
Total for Forbs		57	63	597	56	25	29	210	28	2.42	0.40

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --

Herd unit 19B, Study no: 15

Type	Species	Strip Frequency		Average Cover %	
		'97	'02	'97	'02
B	Amelanchier alnifolia	2	2	-	-
B	Artemisia tridentata vaseyana	69	68	8.61	7.26
B	Eriogonum microthecum	1	1	-	-
B	Gutierrezia sarothrae	86	57	1.20	.68
B	Juniperus osteosperma	0	1	.00	-
B	Pinus monophylla	0	0	.85	.00
B	Purshia tridentata	12	11	1.91	1.92
Total for Browse		170	140	12.58	9.88

CANOPY COVER -- LINE INTERCEPT

Herd unit 19B, Study no: 15

Species	Percent Cover	
	'97	'02
Artemisia tridentata vaseyana	-	6.17
Gutierrezia sarothrae	-	.83
Pinus monophylla	-	.83
Purshia tridentata	-	2.58

Key Browse Annual Leader Growth

Herd unit 19B , Study no: 15

Species	Average leader growth (in)
	'02
Artemisia tridentata vaseyana	1.8
Purshia tridentata	2.7

Point-Quarter Tree Data

Herd unit 19B , Study no: 15

Species	Trees per Acre		Average diameter (in)	
	'97	'02	'97	'02
Juniperus osteosperma	14	32	2.0	1.8
Pinus monophylla	26	73	1.9	1.8

BASIC COVER --

Herd unit 19B, Study no: 15

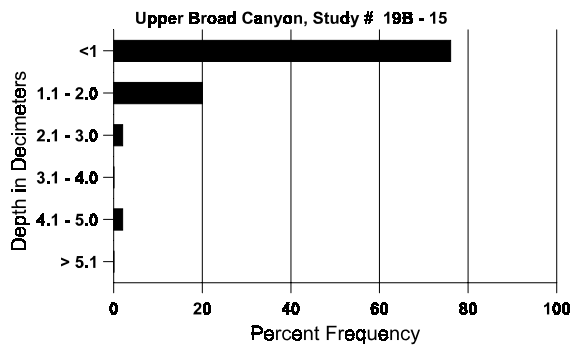
Cover Type	Nested Frequency		Average Cover %			
	'97	'02	'83	'89	'97	'02
Vegetation	359	333	0	5.25	34.31	27.71
Rock	293	310	11.75	17.25	19.31	19.66
Pavement	272	321	28.00	24.75	12.09	13.53
Litter	370	364	49.50	38.50	28.56	28.13
Cryptogams	158	213	.50	2.50	3.05	4.07
Bare Ground	290	291	10.25	11.75	14.59	16.81

SOIL ANALYSIS DATA --

Herd Unit 19B, Study no: 15, Upper Broad Canyon

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
9.6	64.2 (11.3)	7.1	42.4	29.1	28.6	3.0	7.1	166.4	0.6

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 19B, Study no: 15

Type	Quadrat Frequency		Pellet Transect	
	'97	'02	Pellet Groups per Acre 02	Days Use per Acre (ha) 02
Sheep	12	3	252	19 (48)
Rabbit	7	3	-	-
Elk	-	3	-	-
Deer	17	15	287	22 (55)
Cattle	-	3	-	-

BROWSE CHARACTERISTICS --

Herd unit 19B, Study no: 15

A Y G R E	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total	
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Amelanchier alnifolia																		
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	1	-	-	-	-	1	-	-	2	-	-	-	40	12	12	2
	02	-	1	-	-	1	-	-	-	-	2	-	-	-	40	11	16	2
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'83		00%				00%				00%								
'89		00%				00%				00%								
'97		50%				00%				00%				+ 0%				
'02		100%				00%				00%								
Total Plants/Acre (excluding Dead & Seedlings)												'83	0	Dec:	-			
												'89	0		-			
												'97	40		-			
												'02	40		-			
Artemisia tridentata vaseyana																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	3	-	-	-	-	-	-	-	-	1	-	2	-	100			3
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	83	5	3	-	-	-	-	-	-	-	8	-	-	-	266			8
	89	3	1	-	-	-	-	-	-	-	-	-	4	-	133			4
	97	7	-	-	-	-	-	-	1	-	8	-	-	-	160			8
	02	3	-	-	-	-	-	-	-	-	2	-	1	-	60			3
M	83	8	4	29	-	-	-	-	-	-	40	-	1	-	1366	24	23	41
	89	13	12	12	-	-	-	-	-	-	5	-	32	-	1233	16	23	37
	97	31	26	8	-	-	-	-	-	-	49	3	13	-	1300	22	35	65
	02	43	8	-	2	-	-	-	-	-	53	-	-	-	1060	21	34	53
D	83	1	-	17	-	-	-	-	-	-	2	-	16	-	600			18
	89	10	15	7	-	-	-	-	-	-	-	-	32	-	1066			32
	97	9	17	1	3	-	-	-	-	-	8	-	1	21	600			30
	02	36	9	-	2	1	-	1	-	-	31	-	-	18	980			49
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	920			46
	02	-	-	-	-	-	-	-	-	-	3	-	-	-	900			45
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'83		10%				69%				25%				+ 8%				
'89		38%				26%				93%				-15%				
'97		42%				09%				34%				+ 2%				
'02		17%				00%				18%								
Total Plants/Acre (excluding Dead & Seedlings)												'83	2232	Dec:	27%			
												'89	2432		44%			
												'97	2060		29%			
												'02	2100		47%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches)		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4		Ht.	Cr.	
Eriogonum microthecum																		
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	1	-	-	-	-	-	-	-	-	-	1	-	-	20	5	8	1
	02	1	-	-	-	-	-	-	-	-	-	1	-	-	20	4	5	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		00%			00%			00%										
'89		00%			00%			00%										
'97		00%			00%			00%			+ 0%							
'02		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'83	0	Dec:	-			
												'89	0		-			
												'97	20		-			
												'02	20		-			
Gutierrezia sarothrae																		
S	83	62	-	-	-	-	-	-	-	-	62	-	-	-	2066			62
	89	24	-	-	-	-	-	-	-	-	24	-	-	-	800			24
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	83	37	-	-	-	-	-	-	-	-	37	-	-	-	1233			37
	89	66	-	-	-	-	-	-	-	-	66	-	-	-	2200			66
	97	65	-	-	2	-	-	-	-	-	67	-	-	-	1340			67
	02	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	83	118	-	-	-	-	-	-	-	-	118	-	-	-	3933	8	8	118
	89	167	-	-	-	-	-	-	-	-	167	-	-	-	5566	8	12	167
	97	266	-	-	3	-	-	-	-	-	269	-	-	-	5380	7	7	269
	02	92	-	-	1	-	-	-	-	-	89	3	1	-	1860	5	8	93
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	7	-	-	-	-	-	-	-	-	7	-	-	-	233			7
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	02	28	1	-	-	-	-	1	-	-	18	-	1	11	600			30
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	2520			126
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		00%			00%			00%			+35%							
'89		00%			00%			00%			-15%							
'97		00%			00%			00%			-63%							
'02		.80%			00%			10%										
Total Plants/Acre (excluding Dead & Seedlings)												'83	5166	Dec:	0%			
												'89	7999		3%			
												'97	6760		1%			
												'02	2500		24%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Juniperus osteosperma																		
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	02	1	-	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'83		00%				00%				00%								
'89		00%				00%				00%								
'97		00%				00%				00%								
'02		00%				00%				00%								
Total Plants/Acre (excluding Dead & Seedlings)												'83		0	Dec:	-		
												'89		0		-		
												'97		0		-		
												'02		20		-		
Pinus monophylla																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	2	-	-	2	-	-	-	-	-	-	4	-	-	-	80		
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'83		00%				00%				00%								
'89		00%				00%				00%								
'97		00%				00%				00%								
'02		00%				00%				00%								
Total Plants/Acre (excluding Dead & Seedlings)												'83		0	Dec:	-		
												'89		0		-		
												'97		0		-		
												'02		0		-		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Purshia tridentata																		
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	2	2	-	-	-	-	-	-	-	-	4	-	-	133		4	
	97	-	1	-	-	-	-	-	-	-	-	1	-	-	20		1	
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	83	-	-	8	-	-	-	-	-	-	-	8	-	-	266	11	29	8
	89	-	-	5	-	-	-	-	-	-	-	5	-	-	166	10	18	5
	97	3	1	12	-	-	-	-	-	-	-	16	-	-	320	18	34	16
	02	5	5	4	-	-	-	-	-	-	-	14	-	-	280	20	46	14
D	83	-	-	1	-	-	-	-	-	-	-	-	-	1	33			1
	89	-	-	1	-	-	-	-	-	-	-	1	-	-	33			1
	97	-	-	-	-	1	-	-	-	1	2	-	-	-	40			2
	02	1	-	3	-	-	-	-	-	-	2	-	-	2	80			4
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		00%			100%			11%			+10%							
'89		20%			60%			00%			+13%							
'97		16%			68%			00%			- 5%							
'02		28%			39%			11%										
Total Plants/Acre (excluding Dead & Seedlings)												'83	299	Dec:	11%			
												'89	332		10%			
												'97	380		11%			
												'02	360		22%			
Ribes spp.																		
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	14	33	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		00%			00%			00%										
'89		00%			00%			00%										
'97		00%			00%			00%										
'02		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'83	0	Dec:	-			
												'89	0		-			
												'97	0		-			
												'02	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Symphoricarpos oreophilus																		
M	'83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	14	65	0
	'02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'83			00%			00%			00%							
		'89			00%			00%			00%							
		'97			00%			00%			00%							
		'02			00%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)													'83	0	Dec:	-		
													'89	0		-		
													'97	0		-		
													'02	0		-		